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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
JUNTIMA, NITTAYA	

ART UNIT	PAPER NUMBER
2663	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary.	Application No.	Applicant(s)	
	09/722,570	FRAZER ET AL.	
	Examiner	Art Unit	
	Nittaya Juntima	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-51* is/are pending in the application.

4a) Of the above claim(s) *1-17 and 34* is/are withdrawn from consideration.

5)☒ Claim(s) *36* is/are allowed.

6)☒ Claim(s) *18-33,35,37-38, and 39-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 November 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the amendment filed on 12/20/2004.

2. Claims 1-17 and 34 have been cancelled as per applicant's amendment.

Priority

3. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Cannada on 5/30/2000. It is noted, however, that applicant has not filed a certified copy of the 2,310,188 application as required by 35 U.S.C. 119(b).

Drawings

4. The drawings are objected to because all reference numbers in Figs. 1-8 need descriptive text labels to provide a better understanding of the invention, e.g. item 32a in Fig. 1 should be labeled as "subscriber station."

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claim 35 is objected to because of the following informalities:

- in claim 35, ll 19, "stations" should be changed to "station."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. Claims 32 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 32, the limitation "a remaining portion of the signal" in line 16 of the claim is vague and indefinite. It cannot be determined from the claimed language to as what other portion(s) the signal actually has. In addition, there is no linkage between the signal in lines 5 and 8 of and the frame in line 12 of the claim. Therefore, the claim is vague and indefinite. The office is treating this limitation as "a remaining portion of the frame."

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 37-51 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The frame and the communications structure as recited in independent claims 37 and 39 are not claimed as embodied in a computer-readable media or apparatus, which does not permit the frame and the communications structure to be realized.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

9. Claims 18-19, 21-27, 30-33, 35, 37, 39-46, and 49-50 are rejected under 35 U.S.C. 102(e) as being anticipated by Moulsley (USPN 6,407,993 B1).

Regarding claims 18, 32, and 40, as shown in Fig. 1, Moulsley teaches a system for transmitting data comprising:

A network node (a primary station PS1) having an output device (a transceiver) for outputting a signal (a downlink). See col. 2, ll 38-49 and 56-60.

A plurality of subscriber stations/a first and second subscriber stations (secondary stations SS1-SS2 when roam within coverage area CA1) each having an input device (transceiver) and each configured to receive said signal (a downlink) at a different reception-quality/a first and second reception-qualities (different modulation and coding schemes, e.g.) than at least one other of said subscriber stations (col. 2, ll 38-60 and 63-66).

Said signal (a downlink) includes (i) a frame having an identifier (an indication of the modulation schemes to be used by secondary stations, col. 4, ll 20-24) recoverable by all of the subscriber stations and (ii) a remaining portion (data bursts and the rest of the header structure, col. 3, ll 47-51 and col. 6, ll 1-9) including at least one payload packet addressed to and recoverable by at least one of the subscriber stations, said identifier indicating the lowest reception-quality (a low order modulation scheme) at which any of the subscriber stations to which a payload packet is addressed is operable to receive the signal (an indication of the frame formats must indicate a low order modulation scheme, e.g. 128-FSK, for secondary station(s) whose burst(s) are to be received at the cell boundary). See Fig. 2, col. 3, ll 39-51, col. 4, ll 6-24 and 46-54, and col. 6, ll 1-9.

Regarding claim 19, since the system in Fig. 1 is a cellular radio system (col. 2, ll 38-60), the output device (transceivers of the primary station PS1) must comprise a radio, and the input

device (transceiver of the secondary stations SS1-SS3) must comprise a radio, and the signal (a downlink) must also comprise a wireless transmission.

Regarding claims 21 and 41, Moulsley teaches that the identifier (an indication of the modulation schemes to be used by secondary stations, col. 4, ll 20-24) indicates a range of reception-qualities (modulations schemes) and the remaining portion (data bursts and the rest of the header structure, col. 3, ll 47-51 and col. 6, ll 1-9) includes a header having address information (col. 6, ll 1-9), the header being recoverable by the subscriber stations that are configured to receive the signal at a reception-quality within the range, the remaining portion further including at least one payload packet (data bursts) being recoverable by a subscriber station corresponding to the address information (col. 4, ll 6-11 and 20-24).

Regarding claim 22 and 42, Moulsley further teaches that the payload packet is packaged according to an addressee subscriber station's reception-quality (col. 4, ll 6-11 and 20-24).

Regarding claims 23 and 43, Moulsley teaches that the reception-quality comprises a measurement of signal-to-noise (C/N) ratio. See col. 3, ll 13-38 and col. 10, ll 52-62.

Regarding claims 24, 25, 44, and 45, Moulsley teaches that the identifier (an indication of the modulation schemes to be used by secondary stations, col. 4, ll 20-24) is packaged into the frame using a modulation scheme/an encoding operation (an indication of the modulation schemes is part of the header which is modulated, therefore, it must be modulated, col. 3, ll 39-51 and col. 4, ll 55-63).

Regarding claims 26-27, 31, 46, and 49-50, Moulsley teaches that the remaining portion (data bursts and the rest of the header structure) is packaged into the frame using a modulation

operation/a combination of an encoding operation and a modulation operation (col. 3, ll 44-51 and col. 4, ll 6-11).

Regarding claim 30, Moulsley teaches that the modulation operation comprises M-ary QAM (col. 3, ll 17-38).

Claim 33 is a subscriber station claim corresponding to system claim 18, and is therefore rejected under the same reason set forth in the rejection of claim 18 with the addition of means (reads on a transceiver of a secondary station, col. 2, ll 52-60) and means to recover an identifier at which the subscriber station should recover a remaining portion (data burst) of the frame that is packaged according to the reception-quality (a secondary station located at the cell boundary must include means to recover an indication of the frame format in the header of the downlink frame in order to recover its burst that is packaged according to the modulation, e.g. 128-FSK, col. 3, ll 38-51 and col. 4, ll.6-24).

Regarding claim 35, Moulsley teaches a method of packaging a frame for transmission to at least one of a plurality of subscriber stations (secondary stations, col. 2, ll 52-60) over a multiple-access (TDMA, col. 2, ll 56-60) link, each of the subscriber stations having a reception-quality (a combination of modulation and coding schemes, col. 2, ll 56-60 and 63-66) associated with an ability to receive a transmission over the link, the method comprising:

Receiving and buffering at least enough data to fill the frame (data busts must be received and buffered in order to fill the frame, col. 3, ll 38-51).

Assembling the data into at least one payload packet addressed to the at least one subscriber station, the packaged is packaged according to the subscriber station's reception-quality (col. 3, ll 38-51 and col. 4, ll 6-24).

Assembling an address of the at least one subscriber station into a header packet that is packaged according to the at least one subscriber's reception-quality (col. 3, ll 38-51 and col. 4, ll 55-63).

Assembling an identifier (an indication of frame formats in the frame header) indicating the poorest reception-quality (low-order modulation, e.g. 128-FSK) of the at least one subscriber station having the at least one payload packet addressed thereto (col. 3, ll 38-51 and col. 4, ll 6-19), the identifier being recoverable by all subscriber stations regardless of the reception-qualities (an indication is in the header, and the header must be received by all secondary stations being addressed in order for them to correctly receive their data bursts, col. 3, ll 38-51 and col. 4, ll 6-11).

Assembling the payload packets, the header, and the identifier into a frame (col. 3, ll 38-51).

Transmitting the frame over the link (col. 3, ll 38-40).

Regarding claim 37, Moulsley teaches a frame for transmission (a downlink frame, col. 3, ll 38-40 and col. 4, ll 6-19) to a plurality of subscriber (secondary stations, col. 4, ll 6-19) each having a reception-quality (modulation scheme, col. 4, ll 6-19) corresponding to an ability to recover the transmission, the frame comprising:

An identifier (an indication of the formats including modulation schemes) packaged for recovery by all of the subscriber stations and including an indication of whether a receiving subscriber station is within a range of reception-qualities (reads on modulation schemes used with in a frame, col. 3, ll 47-51 and col. 4, ll 20-24).

A header packaged for recovery by subscriber stations within the range and including address information (col. 3, ll 47-51, col. 4, ll 20-24, and col. 6, ll 1-10).

At least one payload packet packaged for recovery by subscriber stations according to the address information (col. 3, ll 43-47 and col. 4, ll 6-11).

Regarding claim 39, as shown in Fig. 2, Moulsley teaches a communications structure (a downlink frame, col. 3, ll 38-51) for communicating between at least one network node (primary station, col. 38-40) and at least two subscriber stations (secondary stations, col. 4, ll 6-11) through a multiple access (TDMA, col. 3, ll 38-40) link, the structure comprising:

A plurality of dedicated channels (data bursts), each dedicated channel having allocated to it a portion of the transmission capacity of the link to provide communication between the network node and the at least two subscriber stations (col. 3, ll 3, ll 40-51).

A shared channel having allocated to it a portion of the transmission capacity of the link and wherein the shared channel is operable to transmit frames of packets from the network node to the at least two subscriber stations (a shared channel whose structure is not defined, reads on a frame section that contains data bursts, e.g. DB1-DB4, which is shared by secondary stations, col. 3, ll 43-51).

Wherein at least one of the dedicated channels (data bursts) employ a modulation method (modulation scheme) for transmissions to a subscriber station which is selected according to the reception-quality of the subscriber station, the modulation method differing from the modulation method for transmission to another subscriber station with a different reception-quality (col. 3, ll 47-51 and col. 4, ll 6-24).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claim 20 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moulsley (USPN 6,407,993 B1) in view of Wallentin et al. ("Wallentin") (USPN 6,154,450).

Regarding claims 20 and 51, Moulsley fails to teach that the signal (downlink) is/the frames are transmitted over a CDMA channel.

However, as shown in Fig. 2, Wallentin teaches that downlink signal is transmitted over a CDMA channel (col. 4, ll 11-25).

Given the teaching of Wallentin, it would have been obvious to one skilled in the art to modify the teaching of Moulsley to include that the signal is/the frames transmitted over a CDMA channel. The suggestion/motivation to do so would have been to enable the subscriber station, i.e. mobile terminal, to receive and use signals from several network nodes, i.e. base stations, simultaneously as taught by Wallentin (col. 1, ll 30-43).

12. Claims 28-29 and 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moulsley (USPN 6,407,993 B1) in view of Schramm et al. ("Schramm") (USPN 6,553,540 B1).

Regarding claims 28-29 and 47-48, Moulsley does not teach that the encoding operation comprises rate 1/N convolutional encoding and N equals at least two, and the result of the encoding operation is punctured.

However, Schramma teaches a method using an encoding operation that comprises rate 1/2 convolutional encoding, and the result of the encoding operation is punctured (Fig. 8 and col. 7, ll 28-col. 8, ll 46).

Given the teaching of Schramma, it would be obvious to one skilled in the art to modify the teaching of Moulsley to include that the encoding operation comprises rate 1/N convolutional encoding and N equals at least two, and the result of the encoding operation is punctured. The motivation/suggestion to do so would have been to provide a forward error correction technique with convolution coding scheme and puncturing scheme to the wireless system as taught by Schramma (col. 4, ll 22-40).

Allowable Subject Matter

13. Claim 36 is allowed. The prior art alone or in combination fail to teach or make obvious on the following when considered in combination with other limitations in the claims: recovering a header from the frame when the identifier indicates that the receiving subscriber station is within a range of reception-qualities and the header recovered using a recovery operation corresponding to a lowest reception-quality as indicated by the identifier.

14. Claim 38 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Nittaya Juntima whose telephone number is 571-272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nittaya Juntima
June 13, 2005
NJ

RICKY NGO
PRIMARY EXAMINER

6/13/05